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mathematicians and listening to delightful talks on Descartes, Newton and Euclid as seen in an interview.

- March 18: Subjects for discussion were "Cranks and their follies" and "The eternal triangle." Part of the hour was spent in solving problems, a prize being awarded for the greatest number of correct solutions. After the business meeting refreshments were served.
- April 27: The subject discussed was "The circle" including the nine-point circle and the problem of Apollonius, to construct a circle tangent to each of three given circles. A lighter supplement was added to the purely instructive part of the program by the reading of one of Stephen Leacock's essays entitled "An interview with our greatest scientist."
- May 27: Spring picnic. The five-dollar prize for the greatest number of solutions to the problems presented during the year was awarded by Professor Cowley. Various members of the club had composed mathematical parodies of well-known songs and the entertainment feature of the meeting consisted in the singing of these parodies.

### PROBLEMS AND SOLUTIONS.

EDITED BY B. F. FINKEL AND OTTO DUNKEL.

Send all communications about problems and solutions to B. F FINKEL, Springfield, Mo.

# PROBLEMS FOR SOLUTION.

[N.B. The editorial work of this department would be greatly facilitated if, on sending in problems, the proposers would also enclose their solutions—when they have them. If a problem proposed is not original the proposer is requested invariably to state the fact and to give an exact reference to the source.]

### 2858. Proposed by C. P. SOUSLEY, Pennsylvania State College.

A boy can split wood as fast as his father can saw, and the father can split twice as fast as the son can saw. How should the money received for their labor be divided?

# 2859. Proposed by L. S. DEDERICK, U. S. Naval Academy.

Derive an expression for the limit of error in evaluating a definite integral by Simpson's Rule.

#### 2860. Proposed by E. O. BROWN, Chicago, Ill.

A frustrum of a right circular cone has a volume v. The lateral area added to the lesser base is a sum which is a minimum. Determine the dimensions of the frustrum in terms of v.

#### 2861. Proposed by B. F. FINKEL, Drury College.

Obtain by plane geometry, *i.e.*, without use of calculus, a construction for finding points on the envelope of a system of circles whose diameters are chords of a fixed circle passing through a given point on it. Also determine geometrically the nature of the locus.

# 2862. Proposed by J. L. RILEY, Stephensville, Texas.

Show that the whole area commanded by a gun on a hillside is an ellipse whose focus is at the gun, whose eccentricity is the sine of the inclination of the hill to the horizon, and whose semi-latus rectum is twice the greatest height to which the gun could send a ball.